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During his recent visit to China, Professor C N R Rao, President, INSA having discussion with Professor Lu Jiaxi, President, Chinese Academy of Sciences at the Institute of Research on Structure of Matter, Fujian.

INDIAN NATIONAL SCIENCE ACADEMY
BAHADUR SHAH ZAFAR MARG
NEW DELHI

INSA MEDAL FOR YOUNG SCIENTISTS—1987

Instituted by the Indian National Science Academy in 1974, these medals are awarded annually in recognition of outstanding work of scientists below the age of 32 (as reckoned on 31st December preceding the year of award). Only those born on or after January 1, 1955 are eligible for consideration in 1987. The work done in India by the nominee will be taken into consideration for the award.

The awardee is presented a medal and a cash award of Rs. 5,000/-. In addition, the recipient is considered for a research grant by the Academy not exceeding Rs. 20,000/- per year, including a stipend for a JRF, for a period of three years for continuing research work, provided the research proposal is considered worthy of such support. Preferential consideration may be given under partial travel grant scheme for attending international conferences.

Nominations for the awards for 1987 may be made by Fellows of the Academy, established scientific societies of all India character, university faculties and departments, or research institutions.

The last date for the receipt of nominations in the Academy is November 15, 1986.

Nomination proforma can be obtained from the Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi 110002 by sending a self addressed envelope of 28 cm $\times$ 12 cm size.

INSA delegation to China : A Report

A delegation of the Indian National Science Academy led by its President, Professor C N R Rao, visited the Peoples Republic of China during July 12-16, 1986, at the invitation of the Chinese Academy of Sciences. The composition of the delegation is given in Appendix-I.

The delegation held discussions with the President of the Chinese Academy of Sciences, Professor Lu Jiaxi and other office bearers. It visited a number of Institutes of the Academy, a list of which is given in Appendix-II.

The delegation was also received by the Counsellor of the State Science and Technology Commission, Prof. Fang Yi in the Great Hall of the People. Members of the delegation had a free and frank discussion with Professor Lu and other members of the Chinese Academy as well as with a number of scientists in various institutes. The delegation wishes to place on record its deep appreciation of the care taken by President Lu, the Chinese Academy of Sciences and the staff of various institutes, and for the warmth, courtsey and gracious hospitality received throughout their stay.

The Chinese Academy of Sciences has six divisions (i) Mathematics and Physics (ii) Chemistry, (iii) Biological Sciences, (iv) Earth Sciences, (v) Applied Optics and Space Sciences and (vi) Microelectronics and Information Science. Under each of these divisions there are some 15-20 institutes the total number being 122. Many of these institutes are located in the eastern part around Beijing. Besides these institutes, the CAS has two centres dealing with History of Science and Science Policy. The Chinese Academy also manages the China University of Science and Technology in collaboration with the State Committee for Education.

Although the Chinese Academy of Sciences promotes basic research in various fields, it lays greater emphasis on application of science, development of technology and the use of S & T for economic development.

By and large, the Institutes of the Academy are exclusive laboratories with restricted entry. However, there is an increasing trend now towards greater openness. Thus, 17 research laboratories have already been declared as being open to scientists from other institutions, while many others visited, appeared to be rather keen to have this privilege. The Academy Institutes tend to foster good interaction with the Universities. Post graduate and doctoral programmes in the country, though rather weak at present, are almost wholly supported by them. Professor Lu also emphasised the keen desire of the Chinese Academy of Sciences to promote international collaboration in the field of Science and Technology.

The laboratories of the Academy Institutes are in general, extremely well equipped, mostly with imported equipment, particularly from USA and Japan. In addition to necessary facilities, the delegation also observed a viable capability for developing sophisticated scientific instruments indigenously: a large variety of lasers, spectrophotometers, fine surgical instruments, electron microscopes, molecular beam epitaxy equipment, chromatographs, digital telemetered seismic networks, to name the few that were seen. Other infrastructural facilities appeared to be moderate. The laboratories were clean and had a spartan look. They had no lifts and only a bare minimum of airconditioning.

In most of the laboratories visited, work being carried out was found to be at the frontiers. A distinct bias towards problem solving, goal and mission oriented research was clearly discernible. The institutes had a very good mix of scientists and engineers and strong links with industry. The proportion of scientists and technologists vis-a-vis technical and other supporting staff was roughly

equal. There were no Class-IV employees. The general relationship between the staff and the director and amongst the staff appeared friendly and informal.

The delegation was deeply impressed by the rapid progress made by the Chinese during the past eight years after their emergence from the ravages of cultural revolution. With this phenomenal rate of progress, the outlook of Chinese Science taking a big leap ahead of us, appear very real. In some areas such as lasers, plant tissue culture, rare earth metallurgy, materials, resource exploration, instrumentation and earthquake hazard assessment, they appeared to be distinctly ahead of us.

Management of Science in China appears to be adite purposive. Once some thrust areas such as lasers, material science or plant tissue culture have been identified overall programmes are formulated taking into consideration important aspects of development needed in basic research, materials, instrumentation and production, to ensure their successful development and application over a wide front. The total work is then allocated to various institutions with clear cut targets and well defined time schedules. In the field of lasers for example, the R. & D activities cover the total spectrum: (i) development of laser materials such as Nd glass rod and ruby rods (ii) production of these materials, (iii) fabrication of various kinds of lasers, such as He-Ne CO_2, Copper vapour and excimer (iv) application of lasers to basic research such as detection and characterization of short lived chemical compounds during catalyst induced chemical reactions, saturation spectroscopy, nonlinear optics and holography, (v) application for industrial, medical and metallurgical and other purposes; lasers for stage illumination, isotope separation, stimulation of fusion reaction and so on. In each of the well identified thrust areas, the Chinese have made spectacular progress. Synthesis of insulin, plant tissue culture for a wide variety of plants—medicinal, ornamental and economic, are some of the other notable achievements.

Periodic meetings of research workers in identified thrust areas are held to review the uptodate progress made, and to chart future courses of action. There is also an efficient monitoring and evaluation system. Good work appears to be appropriately rewarded.

The general impression gained is that although excellence in research endeavour is not very common, its average level is much higher than that obtaining in India. The number of productive scientists appear to be much larger although the total number may be less. However, a larger number of people seem to be involved in accomplishing a desired objective, than would appear necessary.

The Chinese are keenly aware of the shortage of trained and experienced scientists and technologists, but steps have been taken to greatly increase enrolment in technical education. Also, a large number of young scientists are being sent abroad, mostly to appropriate centres in USA for training in well defined areas. Most of them come back to the country to take up an assigned work. In one major institute, 70% of the scientific staff had been abroad during the last five years, some of them on several occasions. The interaction with overseas Chinese seemed very good and highly productive.

Funding of the institutes is also being reorganized towards fostering a greater sense of relevance in the choice of research projects. Thus, while about 50% of the budget for core activities is provided by the Academy, a fair proportion of about 20-30% must be won from the recently established National Science Foundation, and the remainder earned from industry in return for R & D produced for them for consultancy rendered. It was their policy, we were told, to encourage the institutes to progressively increase their earnings from industry by engaging in more relevant and application oriented research.

Higher educational programmes particularly graduate and postgraduate programmes are being expanded rapidly without affecting the quality. Admissions to a University in all branches of knowledge—Arts, Science, Commerce, Engineering and Medicine, are made on the basis of highly competitive nationwide examinations.

Based on direct observations as well as those gleaned and inferred from discussions with scientists, the delegation felt that we could benefit greatly from cooperative endeavours with Chinese scientists and institutions in some of the following fields and the question of initiating some of these cooperative programmes may be examined by the Indian National Science Academy:

i) Lasers
ii) Electronic Materials
iii) Plant Tissue Culture
iv) Seismology
v) Catalysis
vi) High Velocity Deformation
vii) Very Long Base Interferometry (VLBI)

Appendix I

Composition of the INSA delegation to China:

1. Prof C N R Rao, President, INSA & Director, Indian Institute of Science, Bangalore-560012.
2. Prof S K Joshi, Professor of Physics, University of Roorkee, Roorkee.
3. Prof H Y Mohan Ram, Professor of Botany, University of Delhi, Delhi-110007.
4. Prof V G Bhide, Vice-Chancellor, University of Poona, Pune-411007.
5. Prof V K Gaur, Director, National Geophysical Research Institute, Hyderabad-500007.
6. Dr S Ramachandran, Secretary, Department of Biotechnology, Ministry of Science and Technology, New Delhi-110067.
7. Prof P Rama Rao, Director, Defence Metallurgical Research Laboratory, Hyderabad-500258.
8. Prof P N Tandon, Professor and Head, Department of Neurosurgery, All India Institute of Medical Sciences, New Delhi-110016.
9. Shri A K Bose, Executive Secretary, Indian National Science Academy, New Delhi-110002.

Appendix II

List of Institutes visited by the INSA Delegation:
(All are institutes of Academia Sinica except where indicated otherwise).

1. Research Centre for Eco-Environmental Sciences, Beijing. Established in 1986 by merger of institute of environmental chemistry and ecological centre. 300 scientists and technicians work here.
2. Institute of Geology, Beijing. 500 scientists and technicians work here of which about 300 are scientists.
3. Institute of Geophysics, Beijing. 400 research scientists + 200 technicians and associate engineers work here.
4. Institute of Mechanics, Beijing. 800 persons work in the Institute of which 600 as research staff.
5. Institute of Physics, Beijing 900 persons work here of which 600 are scientists.
6. Institute of Aeronautics and Astronautics (under Ministry of Aviation Industry). This is a technical university with major emphasis on aeronautics and astronautics. This has 13 departments, 34 specialists 5 research institutes and 128 teaching groups. This has over 25,000 under graduate and graduate students and 1533 faculty members.
7. Tian Tan Hospital
8. Institute of High energy Physics, Beijing.
9. Dalian Institute of Chemical Physics, Dalian. Staff of about 800 people of which about 500 are research scientists.
10. Institute of Optics and Fine Mechanics Shanghai. Staff of about 1400 persons of which about 400 persons work in a factory run by the Institute and another 700 are research scientists.
11. Institute of Ceramics, Shanghai. Staff is about 1000 persons.
12. Institute of Metallurgy, Shanghai, with a staff of about 800.
13. Haushan Hospital, Shanghai.
14. Brain Research Institute, Shanghai.
15. Institute of Physiology, Shanghai.
16. Fuzian Institute of Research on the structure of Matter, Fuzhou. 550 scientists and technicians work here of which 350 are research staff.
17. Yunnan Observatory, Kunning. 300 persons work here.
18. Institute of Botany, Kunning. 350 persons work here of which 180 are researchers and technicians. There is a botanical garden attached to the institute.
19. South China Institute of Botany, Guangzhou. 575 people work here of which about 325 are researchers and technicians. There is a botanical garden attached to the institute.
20. Zhongshan University of Medical Sciences, Guangzhou There are more than 5000 staff members including about 350 Professors and Associate Professors, 540 lecturers and about 300 senior technicians and approximately four thousand students.
21. State Seismological Bureau of Guangdong province.

Quest for Cosmic Ray Origin : Anuradha Experiment in Spacelab—3*

Professor Sukumar Biswas, Fellow of the Academy and Senior Professor and Head, Cosmic Ray and Space Physics Group, Tata Institute of Fundamental Research, Bombay delivered the INSA Popular Science Lecture on "Quest for Cosmic Ray Origin: Anuradha Experiment in Spacelab—3" at the Physics Department of Poona University on August 3, 1986 that coincided with the INSA Council Meeting at Pune. The objective of the lecture was to present briefly the scientific aspects of the Anuradha Experiment including some preliminary results. Further, the lecture described the instrument and experimental methods, the space flight and instrument operations followed by the post-flight operations and initial results.

Professor Biswas expressed the view that our knowledge of the universe comes from the signals we receive in different forms from the universe. "Cosmic rays bring to us the signals in the form of high energy atomic particles moving with speeds close to the velocity of light, from outside the solar system, from the galaxy and beyond. The origin of cosmic rays has been one of the major unsolved problems of high energy astrophysics. With the advent of cosmic ray detector flown in balloons, rockets, satellites and space probes, new properties of cosmic rays have been discovered. These results combined with new advancements in astronomy and astrophysics in the past few decades have revealed new facets of cosmic ray origin and gave new impetus for the quest of the origin of cosmic rays. Cosmic rays coming from the galaxy, called galactic cosmic rays consist of about 90 per cent protons, 9 per cent helium nuclei and 1 per cent of heavier nuclei extending upto uranium in the energy range of about 10 MeV/nucleon, extending to about 10^{20} eV. Only about 1 per cent of cosmic ray particles are electrons. These high speed atomic nuclei of cosmic rays originate in some types of objects or regions in the galaxy and these energetic charged particles travelled in a tortuous path in the interestellar medium in the galactic magnetic field for about 10 million years before reaching the solar system and the earth. As a result they completely lose the memory of the space and time of their origin. Because of these, the problem of cosmic rays becomes difficult and at the same time interesting."

Professor Biswas elaborately dealt with the various aspects of the experiment and said that the Indian cosmic ray experiment ANURADHA (IONS), designed to measure the ionization states, flu and composition of low energy anomalous cosmic ray ions of helium to iron, was fabricated, assembled and tested in India prior to its integration in Spacelab-3 of NASA. This was the only Indian experiment among the fifteen multi-disciplinary experiments of USA and Europe. The Space flight was conducted in Space-shuttle during April 29 to May 6, 1985. Initial studies indicated that high quality cosmic ray data have been obtained and about 10,000 anomalous cosmic ray alpha-particules and similar number of heavy ions with arrival time information are recorded.

*Popular Science Lecture delivered by Professor Sukumar Biswas, FNA Senior Professor and Head, Cosmic Ray and Space Physics Group, TIFR, Bombay on August 3, 1986.

Council Diary

Minutes of the Ordinary General Meeting of the Indian National Science Academy held at 4.00 p.m. on Tuesday, August 5, 1986 at National Chemical Laboratory, Pune.

Fellows present

Professor C N R Rao, President
Dr S Z Qasim, Vice-President
Professor P N Srivastava, Treasurer
Dr T N Khoshoo, Foreign Secretary
Professor A N Mitra, Editor of Publications
Professor R Ananthakrishnan
Dr John Barnabas
Professor V G Bhide
Professor S Biswas
Professor S Chandrasekhar
Professor (Mrs) Asima Chatterjee
Professor V L Chopra
Dr P K Das
Dr A S Divatia
Dr L K Doraiswamy
Dr N Gopinath
Professor S S Jha
Professor A B Joshi
Professor P K Malhotra
Professor R A Mashelkar
Professor K N Mehrotra
Dr K Nagarajan
Professor R Narasimha
Professor K R Parthasarathy
Dr S Rajappa
Professor R Rajaraman
Professor V Rajaraman
Professor L K Ramachandran
Professor Ramnath Cowsik
Professor R P Roy
Professor Ajit Kumar Saha
Professor (Mrs) Archana Sharma
Professor A K Sharma
Dr C Sivaraman
Dr Sukh Dev
Professor P V Sukhatme
Professor B M Udgaonkar
Professor S K Joshi, Secretary
Professor H Y Mohan Ram, Secretary

Condolence on the passing away of Professor M N Viswanathiah and Professor K B Lal, distinguished Fellows of the Academy.

The death of Professor M N Viswanathiah and Professor K B Lal were condoled. All present stood in silence for one minute as a mark of respect to the deceased.

Confirmation of the minutes of the Ordinary General Meeting held on May 6, 1986.

The minutes of the Ordinary General Meeting held on May 6, 1986, read by **Professor S K Joshi**, Secretary were confirmed.

Presentation of the Shanti Swarup Bhatnagar Medal 1985 to Professor R Narasimha FNA.

Professor **R Narasimha**, FNA delivered the lecture entitled **Order to Chaos and Back: Transitions in Fluid Flows** on August 5, 1986 at the National Chemical Laboratory, Pune (see also Awards & Honours)

The Shanti Swarup Bhatnagar Medal 1985 was presented to professor R Narasimha.

Admission of Fellows under Rule 13

The following Fellows were introduced by those shown against their names, and were admitted to Fellowship of the Academy.

Name of the Fellow	*Introduced by*
S Biswas	A N Mitra
Ramnath Cowsik	A N Mitra
S S Jha	S K Joshi
P K Malhotra	A N Mitra
R Rajaraman	S K Joshi
C Sivaraman	J Barnabas

To read as required under Rule 45(c) the names of the Candidates proposed for election to Fellowship since the last meeting.

The names of those listed below, whose nominations have been received for consideration for election to Fellowship of the Academy since the last Ordinary General Meeting of the academy held

on May 6, 1986, were read by **Prof H Y Mohan Ram**, Secretary.

Name of the nominee	*S.C.*	*Proposed by*	*Date of received*
Subramanyam, Sreenivasiah	VII	P N Mehra	19.5.1986
Banerji, P K	V	S K Sen	19.6.1986
Siddiqi A H	VII	S Z Qasim	24.7.1986

Announcement of award for 1986

The following awards for 1986 were announced:

Subject-wise medals

The **J C Bose Medal** to **Prof M A Viswamitra**, FNA, Department of Physics, Indian Institute of Science, Bangalore-560012.

The **S N Bose Medal** to **Prof A N Mitra**, FNA, Department of Physics, University for Delhi, Delhi-110007.

The **D N Wadia Medal** to **Prof C S Pichamuthu**, FNA, 1, Desouza Road, Bangalore-560025.

The **S H Zaheer Medal** to **Dr C V Sundaram**, FNA, Director, Reactor Research Centre, Kalpakkam-603102.

The **Golden Jubilee Commemoration Medal (Chemical Sciences)** to **Prof T R Govindachari**, FNA, 22, Crescent Park Street, T. Nagar, Madras-600017.

The **Golden Jubilee Commemoration Medal (Biological Sciences)** to **Prof O Siddiqi**, FNA, Department of Molecular biology, Tata Institute of Fundamental Research, Bombay-400005.

Endowed Medals

Shree Dhanwantari Prize to **Prof P N Tandon**, FNA, Department of Neuro-Surgery, All India Institute of Medical Sciences, New Delhi-110029.

The **INSA—Vainu Bappu Memorial Award** to **Prof Martin J Rees**, Institute of Astronomy, University of Cambridge, Madingley Road, Cambridge CB3 OHA, England.

Announcement of names of Scientists selected for the award of INSA Medal for Young Scientists—1986.

The names of fiteen scientists (see Awards & Honours) selected for the award of INSA Medal for Young Scientists 1986 were announced by **Professor H Y Mohan Ram**, Secretary.

Scrutiny of voting papers for amendment of Rules 9, 10, 11 and 13.

Professor R A Mashelkar and **Professor V L Chopra** were appointed scrutineers by the President.

The amendment of Rules 9, 10, 11 and 13 (Appendix-I) were declared carried having received more than 2/3rd of the valid votes polled in favour of the proposed change.

President *Secretaries*

SECTIONAL COMMITTEES—1987

MEMBERS

Sectional Committee—I : Mathematical Sciences
(Applied Mathematics, Pure Mathematics and Statistics)

Name	*To serve until 31th Dec. of*
O P Bhutani	1987
S Ramanan	1987
S K Trehan	1987
R Parthasarathy	1988
C G Khatri	1988
C S Seshadri	1988
S K Mitra	1989
N Mukunda (Secretary & Convener)	1989
T N Shorey	1989

Sectional Committee—II : Physics
(Astronomy and Astrophysics, Physics of Materials, Space Physics, Sub-atomic, Atomic and Molecular Physics, and Theoretical Physics)

B Buti	1987
G Rajasekaran	1987
G Venkataraman	1987

R Chidambaram (Secretary & Convener)	1988
A S Divatia	1988
K P Sinha	1988
G S Agarwal	1989
Ramnath Cowsik	1989
V G Bhide	1989

Sectional Committee—III : Chemical Sciences
(Analytical, Inorganic, Organic, Physical and Theoretical Chemistry)

T R Kasturi	1987
P T Narasimhan	1987
S S Sandhu	1987
J C Ahluwalia	1988
C Mehta (Secretary & Convener)	1988
G K N Reddy	1988
U R Ghatak	1989
P T Manoharan	1989
K K Rohatgi Mukherjee (Mrs)	1989

Sectional Committee—IV : Engineering & Technology
(Applied Physics, Chemical Technology, Electronics and Telecommunication, Engineering and Engineering Sciences)

S C Dutta Roy	1987
R J Garde	1987
R A Mashelkar (Secretary & Convener)	1987
B L Deekshatulu	1988
Rajinder Kumar	1988
P V S Rao	1988
D K Dutta Majumdar	1989
R Narasimha	1989
P Ramachandra Rao	1989

Sectional Committee—V : Earth Sciences
(Atmospheric Sciences, Geography, Geo-Sciences and Oceanography)

A Mookerjee	1987
R G Rastogi	1987
S N Sarkar	1987
K Naha	1988
A K Saha	1988
M S Srinivasan	1988
P K Das (Secretary & Convener)	1989
K Gopalan	1989
S Z Qasim	1989

Sectional Committee—VI : Plant Sciences
(Structural, Developmental, Functional, Genetical, Ecological, Taxonomical and Evolutionary Aspects)

D D Awasthi	1987
Y S R K Sarma	1987
Archana Sharma (Mrs)	1987
A Gnanam	1988
C P Malik	1983
J S Singh	1988
Y P Abrol	1989
H Y Mohan Ram (Secretary & Convener)	1989
V S Rama Das	1989

Sectional Committee—VII : Animal Sciences
(Structural, Developmental, Functional, Genetical, Ecological, Behavioural, Taxonomical and Evolutionary Aspects)

C J Dominic	1987
G P Dutta	1987
M R N Prasad	1987
Krishna Swarup	1988
A S Mukherjee	1988
V P Sharma	1988
V G Jhingran	1989
V C Shah	1989
P N Srivastava (Secretary & Convener)	1989

Sectional Committee—VIII : Medical Sciences
(Basic and Clinical Medical Sciences, Anthropology, Psychology)

S C Agarwal	1987
K J Ranadive	1987
M V S Valiathan (Secretary & Convener)	1987
S R K Chopra	1988
D J Jussawalla	1988
C R R M Reddy	1988
S K Mukherjee	1989
H D Tandon	1989
N H Wadia	1989

Sectional committee—IX : Biochemistry & Biophysics
(Biochemistry, Biophysics, Molecular Biology, Microbiology and Immunology)

G Govil	1987
V V Modi	1987
M A Viswamitra	1987
G Padmanaban (Secretary & Convener)	1988
Joseph Thomas	1988
S Varadarajan	1988
P R Adiga	1989
A N Bhaduri	1989
C Sivaraman	1989

Sectional Committee—X
(Agriculture, Animal Husbandry, Fisheries and Forestry)

K S Gill	1987

S K Sinha (Secretary & Convener)	1987
N S Subba Rao	1987
P D Dogra	1988
A B Joshi	1988
S S Prihar	1988
I P Abrol	1989
Akhtar Hussain	1989
Prem Narain	1989

Appendix I

Rules 9, 10, 11 and 13

9. An admlsslon fee of Rs. 32/- and Fellowship subscription of Rs. 450/- shall be due on election from the persons elected (effective from 1 January 1987 onwards). No annual subscription will be payable by these Fellows as provided under Rules 19 and 25 regarding subscriptions of Fellows. The Fellowship subscription of Rs. 450/- may be paid either in a single sum or by instalments not exceeding three, in a calender year. The first instalment of Rs. 150/- must be paid alongwith admission fee. If the admission fee and Fellowship subscription are not paid within three months after issue to such person of the intimation of his election as Fellow, such election shall become inoperative. Provided that, the Council shall have power to reinstate him with full privileges after his admission fee and Fellowship subscription have been paid within a period not exceeding twelve months from the date of his election. In the case of a Fellow elected under the provisions of rule 7(e), the Council may, at their discretion, not require payment of the admission fee.

10. No person, although duly elected according to the rules and Regulations of the Academy, shall be entitled to exercise the rights and privileges of Fellowship, nor shall his name be entered in the list of Fellows, until he has paid his admission fee and first instalment of his Fellowship subscription and until he has sligned and returned the Obligation.

11. The payment of such admission fee and first instalment of Fellowship subscription and the signature of the Obligation shall be the commencement of effective Fellowship and shall be equivalent to the expression of a direct acqulescence in all Rules and Regulations of the Academy then in existence, and of an undertaking to be bound by them and by such as may therafter be passed, as hereinafter provided.

13. Every new Fellow who has paid his admission fee and first instalment of Fellowship subscription, and has returned the Obligation, signed and addressed to the Secretaries shall, at the first General Meeting which he attends, be presented by a Fellow to the Chairman who addressing him aloud by name shall say, '**In the name and by the authority of the Indian National Science Academy, I admit you a Fellow thereof**,' and will present him with a diploma in a form prescribed by the Council certifying his election to the Academy, after which the Fellow shall subscribe a duplicate of the aforesaid obligation in a book to be kept for the purpose.

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INSA BURSARY SCHEME

The Indian National Science Academy invites applications from individual scientists for the award of INSA Bursary Scheme (non-recurring) under which crucial grant upto Rs 40000/- can be sanctioned by the Academy for the purchase of equipments, components, and accessories, chemicals and such other items or to organize small group discussion of professional colleagues on important aspects of research and development or any other significant activity related to research.

Application forms of the Bursary grant may be obtained from the Project Officer (B.S.) Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002.

Requests received for the Bursary grant will be considered by the Academy from time to time.

Awards and Honours

THE SHANTI SWARUP BHATNAGAR MEDAL 1985

The Shanti Swarup Bhatnagar Medal was established by the Academy in 1957 in memory of the late Dr Shanti Swarup Bhatnagar, a distinguished Fellow of the Academy. Initially the medal was awarded for outstanding contributions in the field of applied sciences. Since 1976, the medal is awarded every three years, in recognition of outstanding contributions in Engineering or Technology. The award carries a Bronze Medal.

The Medal for the year 1985 has been awarded to **Professor Roddam Narasimha**, FNA, Director, National Aeronautical Laboratory, Bangalore, for his contributions in the field of fluid mechanics.

Professor Narasimha is a fluid-dynamicist and aerospace engineer. He obtained his Bachelor's Degree in Mechanical Engineering from the University of Mysore, then joined the Indian Institute of Science where he obtained a Diploma and an Associateship in Aeronautical Engineering. He was awarded the PhD at the California Institute of Technology, Pasadena, in 1961.

His chief scientific interests have been in fluid mechanics, aerospace science and engineering, and atmospheric sciences. His major research efforts in fluid mechanics include work on relaminarisation of fluid flows, on the laminar-turbulent transition zone in the boundary layer, and on the structure of turbulent flows and shock waves. He has also been closely involved with developments in aerospace technology in India: during 1977-80 he was Chief Project Coordinator at Hindustan Aeronautics, where he initiated and led several aircraft design studies culminating in the Light Combat Aircraft concept. His participation in an evaluation of the airworthiness of civilian aircraft has led to the concept of Stochastic Corrective Processes.

He has edited three books and is the author of about 100 papers and 120 reports.

He is the recipient of several honours including the Minta Martin Award of the Institute of Aerospace Sciences (US), the Bhatnagar Prize in Engineering Sciences, the Homi Bhabha Award in Applied Science and the Distinguished Alumni Award of the California Institute of Technology. He is the Clark B Millikan Visiting Professor of Aeronautics at Caltech since 1985, where he was also Sherman Fairchild Distinguished Scholar in 1982-83. He is a Fellow of the Indian Academy of Sciences, the Indian National Science Academy, and the New York Academy of Sciences: and an Honorary Fellow of the Aeronautical Society of India. He has been invited speaker at various national and international symposia, including the Boltzmann Symposium, the Canadian Congress of Theoretical and Applied Mechanics, the Annual Meeting of the American Institute of Astronautics and Aeronautics, and the Asian Congress of Fluid Mechanics, on subjects ranging over relaminarisation, transition, shock waves etc.

He edits Sadhana for the Indian Academy of Sciences, and is on the editorial board of other Indian and international journals. His major advisory positions include membership of the General Body and Governing Body of the Aeronautical Development Agency, Board of Directors of Hindustan Aeronautics Limited, Council of the Indian Academy of Sciences and Indian National Science Academy, and the Science Advisory Council to the Prime Minister.

INSA MEDAL FOR YOUNG SCIENTISTS 1986

The Indian National Science Academy instituted INSA Medal for Young Scientists in 1974 to give recognition to the achievements of scientists below the age of 32, in any branch of science and technology within the purview of the Academy.

The Council of the Indian National Science Academy has selected 15 scientists for the award for the year 1986. A list of the awardees announced at the General Meeting held on August 5, 1986 at the national Chemical Laboratory, Pune

follows. There is a cash award of Rs. 5,000/- with the medal. The awardees may also be considered for a research grant not exceeding Rs. 20,000/- per year, including a stipend for a Junior Research Fellow, for a period of three years for continuing research work, in the field of their specialization if the research proposal is approved by the Academy for such support after assessment. Preferential consideration may be given under partial travel grant scheme for attending international conferences.

The presentation of the award will be made at the inaugural function of the 74th Session of the Indian Science Congress at Bangalore in January 1987.

List of Scientists selected for the award of INSA Medal for Young Scientists for the year 1986

Dr Biman Bagchi (b. 1.1.1954) Lecturer, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore-560012.

—for his contributions to theoretical studies of liquid structure and liquid-solid transitions.

Dr Amarjit Singh Basra (b. 13.7.1958) Assistant Professor, Department of Botany, Punjab Agricultural University, Ludhiana.

—for his original contributions on the elongation and development of cotton fibres.

Dr Kamal Bhattacharyya (b. 3.8.1955) Lecturer, Department of Chemistry, University of Burdwan, Golapbag, Burdwan-713104.

—for his contributions to quantum chemistry especially in the area of perturbation formalism.

Dr K V R Chary (b. 10.2.1954) Scientific Officer, 500 MHz FT-NMR National Facility, Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Bombay-400005.

—for his study of the structure of DNA segments by 2D FT-NMR.

Dr Jayaraman Gowrishankar (b. 24.3.1956) Scientist 'C', Centre for Cellular & Molecular Biology, RRL Campus, Hyderabad-500007.

for his work on genetics of osmoregulation.

Dr Dipankar Home (b. 11.11.1955) Theoretical Nuclear Physics Division, Saha Institute of Nuclear Physics, Calcutta-700009.

—for his very interesting work on fundamental aspects of quantum mechanics specially his studies relating to Bell's theorem, Aharonov-Bohm effect and incompatibility between Einstein's locality condition and quantum mechanics with CP violation.

Dr S K Koul (b. 10.1.1954) Centre for Applied Research in Electronics, Indian Institute of Technology, Hauz Khas, New Delhi-110016.

—for his innovative analysis of microstrip-like transmission lines and its application to the design and development of microwave and millimeter wave integrated circuits.

Dr Ravi Mehrotra (b. 2.8.1954) Scientist 'C', National Physical Laboratory, Hillside Road, New Delhi-110012.

—for his work done after joining NPL in 1983 specially for his experiments on Quantum Hall effect, theoretical studies in viscoelastic effects in 2D electron liquid and his prediction of existence of shear waves in 2D electron liquid.

Shri B Mishra (b. 17.9.1958) Senior Research Fellow, Department of Geology & Geophysics, Indian Institute of Technology, Kharagpur-721402.

—for ingenuity in applying thermodynamics to problems of sulphide ore genesis.

Dr E V Sampathkumaran (b. 6.12.1954) Solid State Physics Group, Tata Institute of Fundamental Research, Homi Bhabha Road, Colaba, Bombay-400005.

—for his extensive experimental studies of valence fluctuations in rare-earth systems.

Dr J A Sekhar (b. 3.9.1956) Scientist 'C', Defence Metallurgical Research Laboratory, P O Kanchanbagh, Hyderabad-500258.

—for his discovery of rapid pressurisation as a new solidification technique and his impressive contributions to rapid solidification processing.

Dr Y Chandra Sekharudu (b. 21 Feb., 1958) Molecular Biophysics Unit, Indian Institute of Science, Bangalore-560012.

—for his work on computational study of lectin-carbohydrate interactions.

Dr A Sharma (b. 7.5.1955) Department of Physics, Indian Institute of Technology, Hauz Khas, New Delhi-110016.

—for his novel technique for the design and development of graded index optical imaging systems.

Dr R S Upadhyay (b. 15.11.1955) Lecturer in Botany, Centre of Advanced Study in Botany, Banaras Hindu University, Varanasi-221005.

—for his original contributions towards the biological control of *Fusarium* wilt of pigeon pea

Dr (Miss) Chandrika Varadachari (b. 6.5.1956) 7A Judges Court Road, "RATNABALI" Calcutta-700027.

—for her original work on the chemistry and process development on the extraction of potassium from mica & biotite.

INDIAN NATIONAL SCIENCE ACADEMY, NEW DELHI

REGULATIONS REGARDING

Indira Gandhi Prize for Popularization of Science

(Instituted by the INSA Council at its meeting held on August 4-5, 1986 to encourage and recognize popularization of science and named after the late Prime Minister Indira Gandhi, who strived for inculcating a scientific temper among the Indian people and who was deeply convinced of the basic values and applications of science.)

Name of the Prize

The Prize shall be called '**Indira Gandhi Prize for Popularization of Science**'.

Eligibility and Value

The prize shall be awarded once in two years for outstanding work done by an individual for the popularization of science in any Indian language, including English. The nominee must have had a distinguished career as a writer, editor, journalist, lecturer, radio or television programme director, film producer, science photographer or as an illustrator, which has enabled him/her to interpret science (including medicine), research and technology to the public. He/she should have a knowledge of the role of science, technology and research in the enrichment of cultural heritage and in solution of problems of humanity. The first award will be made for the year 1986.

The prize is open to any Indian national residing in the country and will carry Rupees 10,000/- in cash and a bronze medal of the specifications given below:

(i) Size : 6.35 cm in diameter
(ii) Weight : About 114 grams
(iii) Design :
Obverse : Name of the Medal
(in Devanagari characters)
Name of the recipient
(in Devanagari characters)
Reverse : Seal of the Academy

Nominations and last date

Nominations for consideration for the prize shall be invited from INSA Fellows, Vice-Chancellors, Deans, Principals, Directors of leading scientific institutions and National Labortories and editors of selected Indian science journals. Advertisements will also be inserted in the selected popular science journals for this purpose.

The nomination paper shall specify: (i) Name and address of nominee; (ii) Name, designation and address of nominator, (iii) Summary of the work done by the nominee which will form the basis for nomination (about 200 words); (iv) a longer statement (not exceeding 1000 words) providing additional information regarding the career of the nominee as a popularizer of science; (v) nominee's biodata (not more than three pages) and list of nominee's published works. Five sets of reprints or xerox copies of important works to be made available for viewing by the jury; (vi) whether the work (part or whole) presented has been recognized for any other prize or award; and (vii) list names of three references (with addresses and telephone numbers) who may be contacted for further information.

The last date for receipt of nominations in the Academy shall be October 31.

Selection

The President, INSA, will appoint a Committee which will consist of four members besides him to consider the nominations and make recommendations to the Council. The Committee will be empowered to consult experts in the field, if necessary.

The material for judging would include writing in newspapers, magazines, popular books and scripts prepared for radio and television programes and films. Initiative, originality, scientific accuracy, clarity of interpretation and impact of creating excitement, interest and understanding of science would be important criteria for judging the entries. Work already recognized for any other award will not be accepted.

The recommendations of the Committee shall be considered by the Council in January and final selection made.

Announcement

The name of the person selected for the prize will be announced at the Anniversary General Meeting of the Academy in January. The recipient will be expected to deliver a lecture at a venue to be fixed by the Academy. A summary of the talk will be prepared by the awardee and will be supplied to the Academy in English and Hindi.

Presentation of the Prize

The presentation of the prize money and medal will be made to the recipient at the meeting at which he delivers the lecture.

* * *

CURRENT AWARENESS SERVICE

In accordance with the decision of the Library Committee, a new service called 'Current Awareness Service' has been introduced from January, 1986. Under this scheme, INSA Library sends contents pages of selected journals to interested Fellows. A Fellow can be provided a photocopy of the articles of his interest which he may indicate after going through the current contents of the journal of his choice. The number of such journals from which a Fellow can make his choice is restricted owing to financial and personnel limitations. The service is currently available to Fellows on payment of annual subscription of Rs 50/- as notified through the circular letter dated November 1, 1985. The scheme is again brought to the notice of the Fellowship so that his service can be utilised by larger number of scientists. For further information: contact Mr B D Ukhul, Librarian, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002.

* * *

SICO-SPONSORED NATIONAL ACADEMY OF SCIENCES AWARDS

Nominations are invited for SICO Sponsored National Academy of Sciences Awards, one each in

(i) Instrumentation,
(ii) Biotechnology, and
(iii) Environmental Sciences

The Awards, comprising Rs. 10,000/- in cash and a Citation, will be given in 1986 to mark the Platinum Jubilee year of the Scientific Instrument Co. Ltd., Allahabad.

An Indian citizen engaged in scientific work in the aforesaid fields in India may be nominated for the Awards. Proforma for the nomination and the list of persons/organizations authorised to make nominations may be obtained from the undersigned. Nominations would be judged mainly on the basis of the contributions during the last 5 years.

The last date for the receipt of nomination is 30th September, 1986.

U S Srivastava
General Secretary
National Academy of Sciences, India
5, Lajpatrai Road, Allahabad-211002.

* * *

INDIRA GANDHI PRIZE FOR POPULARIZATION OF SCIENCE

Instituted by the INSA Council, at its meeting held on 4-5 August, 1986 to encourage and recognize popularization of science and named after the late Prime Minister Indira Gandhi, who strived for inculcating a scientific temper among the Indian people and who was deeply convinced of the basic values and applications of science.

INVITATION FOR NOMINATIONS
1986
Last Date : October 31, 1986

The prize will be awarded for outstanding work done by an individual for the popularization of science in any Indian language, including English. The nominee must have had a distinguished career as a writer, editor, journalist, lecturer, radio or television programme director, film producer, science photographer or as an illustrator, which has enabled him/her to interpret science (including medicine), research and technology to the public. He/she should have a knowledge of the role of science, technology and research in the enrichment of cultural heritage and in solution of problems of humanity. The material for judging would include writing in newspapers, magazines, popular books and scripts prepared for radio and television. Initiative, originality, scientific accuracy, clarity of interpretation and impact of creating excitement, interest and understanding of science would be important criteria for judging the entires. Work already recognized for any other award will not be accepted.

The prize is open to any Indian national residing in the country and will carry Rs. 10,000/- in cash and a bronze medal. Nominations for the award of Prize may be made by the Fellows of INSA, Vice-Chancellors, Deans, Principals, Directors of leading scientific institutions and National Laboratories and Editors of Indian Popular Science Journals in the prescribed form, which will be supplied on request. The Nomination form duly completed in all respects may be sent so as to reach **Executive Secretary, Indian National Science Academy,** Bahadur Shah Zafar Marg, New Delhi-110002 latest by **October 31, 1986** indicating on the envelope "Nomination for Indira Gandhi prize for Popularization of Science".

* * *

ENTRIES UNDER "FELLOWSHIP" INSA YEAR BOOK 1987

The Mss of INSA Year Book 1987 is under preparation. Fellows are requested to communicate modifications, if any, to the entires to be printed under "Fellowship" in the year Book 1987.

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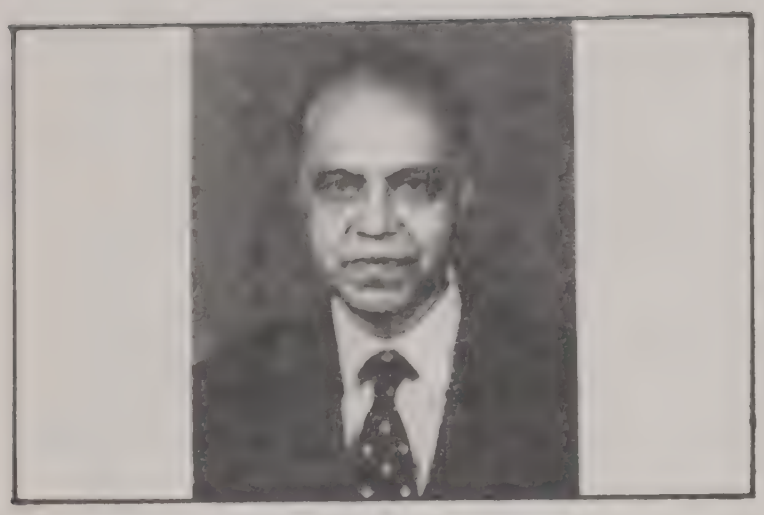
Obituary



Professor Mysore Nanjappa Viswanathiah, a Fellow of the Academy was born on November 23, 1921 and died on January 24, 1986. A Doctorate from University of London (1959), Viswanathiah was the Professor and Head, Department of Geology, Mysore University, Mysore (1961-81) and subsequently took up the Vice-Chancellorship of the Bangalore University.

Professor Viswanathiah received Siver Jubilee Gold Medal (1969) of the Kiev University and Mysore Geologists' Gold Medal (1975) of the Geological Society of India. He was the President, Geology and Geography Section, Indian Science Congress Association (1982-83). He devoted his research career mainly to the investigations of Kaladgi and Badami Groups with particular reference to its sedimentation, straigraphy and tectonics. He discovered for the first time the Precambrian fossils in the Kaladgis, Badamis and even in the oldest rocks Sargurs of Karnataka. The palynofossils like Chytonozoans and Scolecodonts of Ordovician age reported from Badamis are of great stratigraphic significance

Viswanathiah was elected to the Fellowship of the Academy in 1982.

Professor Natesan Ramanathan, FNA was born on December 31, 1923 and expired on August 6, 1986. He received his Doctorate degree from University of Bombay (1951) and University of Leeds (1955). Ramanathan was the Director of Central Leather Research Institute, Madras and subsequently took up the Honorary Professorship at Anna University, Madras. He was the Founder Fellow, Tamil Nadu Academy of Sciences and Member, Electron Microscope Society of India. Ramanathan received Invention Promotion Award of the Government of India, International Wool Secretariat Research Fellowship and Post-Doctoral Reserch Fellowship of the National Research Council of Canada.

Professor Ramanathan has correlated the electron microscopical structure of collagen fibres and leather with their physical properties and established how these are influenced by biological and environmental factors. His discovery of the directional friction effect in collages fibres facilitated the correction of defects in hides. His work on the human foot has contributed to a new shoe sizing system.

Ramanathan was elected to the Fellowship of the Academy in 1982.

INSA Library

BOOKS ADDED DURING APRIL 1986—AUGUST 1986

SCIENCE GENERAL

INDIAN NATIONAL SCIENCE ACADEMY : Science in India : 50 Years of the Academy. New Delhi, INSA, 1985.

RADNITZKY, Gerard & ANDERSSON, Gunnar Eds. : The structure and development of science. Dordrecht, Holland, D. Reidel Publishing Co., 1979.

THE ROYAL SOCIETY : The Public understanding of science : Report of a Royal Society. London, The Royal Society, 1985.

BIOGRAPHY

MITRA, A N et. al. Eds. : Niels Bohr a profile. New Delhi, Indian National Science Academy, 1985.

ASTRONOMY

ROY, A E & CLARKE, D : Astronomy : Principles and Practice. 2nd edn. Bristol, Adam Hilger Ltd., 1982.

ROY, A E & CLARKE, D : Astronomy : Structure of the Universe. 2nd edn. Bristol, Adam Hilger Ltd., 1982.

PHYSICS

ADVANCED STUDY INSTITUTE ON HEAT TRANSFER EQUIPMENT DESIGN HELD AT PUNE FROM JUNE 16-27, 1986. 2 Vols. Vol. 1 & 2.

HENDRY, John Ed. : Cambridge physics in the thirties. Bristol, Adam, Hilger Ltd., 1984.

ITALIAN PHYSICAL SOCIETY : Proceeding of the International school of physics "Enrico Fermi". Amsterdam, North Holland, 1986. Course 94 : Theory of Reliability Ed. by A Serra and R E Barlow.

SQUIRES, Evan : To acknowledge the wonder : The story of fundamental physics. Bristol, Adam Hilger, 1985.

SRINATH, L S : Scattered light photoelasticity. New Delhi, Tata McGraw-Hill Publishing Co., Ltd., 1983.

SRINATH, L S : Advanced Mechanics of Solids. New Delhi, Tata McGraw-Hill Publishing Co., Ltd., 1983.

CHEMISTRY

DAS, M Sankar : Trace analysis and technological development. New Delhi, Wiley Eastern Ltd., 1983.

MAZARIO, Fabian Alvarez : The Quasi-ideal state : A new approach to some classical equations of physical chemistry. Puerto Rico, Centro Grafico, Del Caribe, 1986.

EARTH SCIENCE

INTERNATIONAL SYMPOSIUM ON NEOTECTONICS IN SOUTH ASIA : Proc. held at Dehra Dun from February 18-21, 1986. Dehra Dun, Survey of India, 1986.

DAS, P K : Monsoons. World Meteorological Organization, 1986.

BIOLOGICAL SCIENCES

D'MONTE, Darryl : Temples or tombs? : Industry versus environment three controversies. Delhi, Centre for Science and Environment, 1985.

COUDIE, Andrew : The nature of the environment : An Advanced physical geography. Oxford, Basil Blackwell, 1984.

OLIVER, Stephen G & WARD, John M : A dictionary of genetic engineering. Cambridge, Cambridge University Press, 1985.

RAO, D N et al. Eds. : Perspectives in environmental botany. Lucknow, Print House, Vol. 1.

MEDICAL SCIENCE

ENZMANN, Dieter R. : Imaging of infections and inflammations of the central nervous system. New York, Raven Press, 1986.

GUHA, Sujoy K Ed. : Trends in biomedical engineering : Proc. of the International Symposium and Workshop on Bio-medical Engineering New Delhi, February 15-22, 1978. New Delhi, CBME Publications, 1978.

ENGINEERING AND TECHNOLOGY

AHMAD, Nazir : Tubewell theory and practice. Lahore, Pakistan Academy of Sciences, 1979.

DENNIS, Jack : The nuclear almanac : Confronting the atom in war and peace. Massachusetts, Addison-Wesley Publishing Co., 1984.

SRINATH, L S et al. : Experimental stress analysis. New Delhi, Tata McGraw-Hill Publishing Co., Ltd., 1984.

SRINATH, L S : Concepts in reliability engineering. 2nd edn. New Delhi, Affilliated East-West Press Pvt. Ltd., 1985.

ENERGY AND POWER

BIO-ENERGY SOCIETY FIRST CONVENTION & SYMPOSIUM'84 : Proc. : Theme : Bio-energy from waste & waste-land held at New Delhi, from 14-16, October 1984. New Delhi, Bio-Energy Society of India, 1985.

LOWENSTEIN, Michael Z. Ed. : Energy applications of biomass. London, Elsevier Applied Science Publishers, 1985.

PARKER, Colin & ROBERTS, Tim Eds. : Energy from waste : An evaluation of conversion technologies. London, Elsevier Applied Science Publishers, 1985.

AGRICULTURE

AFZAL, Muhammad : Farming in Pakistan. Islamabad, Pakistan Academy of Sciences.

ASLAM, M & KHAN, A H : Post-harvest loss reduction in fruits & vegetables—A Review with special reference to Pakistan. Islamabad, Pakistan Academy of Sciences, 1983.

GUPTA, B M et al. Eds. : Perspectives in plant virology 1985. Lucknow, Print House, Vol. 1.

KHATTAK, G M : The feasibility of forestry and forest industries in hazara division : A Socio Economic Study. Islamabad, Pakistan Academy of Sciences, 1982.

PROCEEDINGS OF THE SYMPOSIUM ON WATERLOGGING AND SALINITY HELD AT ISLAMABAD, FROM MARCH 17-20, 1968. Islamabad, Pakistan Academy of Sciences, 1968.

WINTERINGHAM, F P W Ed. : Environment and chemicals in agriculture : Proc. of a symposium held in Dublin, 15-17 October 1984. London, Elsevier Applied Science Publishers, 1985.

GENERAL

THE ENCYCLOPAEDIA OF ISLAM. Ed. by C E Bosworth et al. Leiden, E J Brill, 1983. Vol. 5.

ENCYCLOPEDIA OF LIBRARY AND INFORMATION SCIENCE. New York, Marcel Dekker. Vol. 38-40.

GANI, J. & PRIESTLEY, M B Eds. : Essays in time series and allied processes. Sheffield, Applied Probability Trust, 1986.

GHOSAL, A. Ed. : Pragmatic Cybernetics. New Delhi, South Asian Publisher, 1986.

GLIMM, James & JAFFE, Arthur : Collected Papers. Boston, Birkhauser, 1985. 2 Vols.

GUHA, B : Documentation and information : Service, techniques and systems. Calcutta, The world Press Private Ltd., 1983.

GUHA, B : Ed. : In the library and information science horizon : A collection of essays in honour of Dr. V A Kamath. Delhi, Allied Publishers Private Ltd., 1986.

HOMI JEHANGIR BHABHA : Collected Scientific Papers ed. by B V Sreekantan et al. Bombay, Tata Institute of Fundamental Research, 1985.

JAPAN PRIZE 1985 : 1. : Tokyo,. The Science and Technology Foundation of Japan, 1985.

HIELS BOHR : Collected Works. Amsterdam, North-Holland, 1986. Vol. 9. : Nuclear Physics (1929-1952).

SPENCER, Donald C. : Selecta. Philadelphia, World Scientific Publishing Co., 1985. 3 vols.

SPIRIT OF ENTERPRISE : The 1984 Rolex Awards. London, Aurum Press, 1984.

ANNOUNCEMENT

Election of Fellows and Supply of Nomination Forms

Nominations for election of Fellows in the prescribed proforma should reach the Executive Secretary, Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002 on or before **15th November 1986.** 15 copies of up-to-date list of publications of the nominee and one set of reprints must accompany the nomination paper. Nomination not accompanied by list of publications and a set of reprints shall not be valid for consideration during 1987. The statement regarding the most significant research achievements of the nominee should not exceed 200 words under Column 9 of the nomination paper. Information of purely biographical or general nature should be avoided. Nomination forms are supplied to the Fellows of the Academy on request.

PUBLICATIONS OF THE ACADEMY

(For details please contact Associate Editor, INSA)

Proceedings

Part A (*Physical Sciences*), **Part B** (*Biological Sciences*)
First issued in 1935 as a single volume for both branches, split into two series in 1955.
Periodicity : Monthly (six issues of each part in a year)
Annual Subscription (including postage)
Inland : Rs. 300/- (Rs. 150/- per part)

Indian Journal of Pure and Applied Mathematics

Devoted primarily to original research in Pure and Applied Mathematics. First issued in January 1970.
Periodicity : Quarterly up to 1971, bimonthly in 1972 and as a monthly journal from 1973.
Annual Subscription (including postage)
Rs. 300/-

Biographical Memoirs of the Fellows of INSA

Contains memoirs on the deceased Fellows of the Academy. First issued in 1966 and priced individually. Eleven volumes have been published so far. The next volume is in print.

Monographs

First issued in 1960 and priced individually.

Bulletins

Contain proceedings of the symposia. First issued in 1952 and are priced individually. The papers read at the symposium are now being published in the Proceedings also.

Popularisation of Science

Famous Plants by B. M. Johri & Sheela Srivastava. Rs. 7.50; $2.50

Year Book

A hand-book on the origin, functioning, activities, and rules & regulations of the Academy. First issued in 1960 and priced individually.

INSA Scientific Report Series

5 volumes have been published since 1

Edited and Compiled by Dr Alok K Moitra, Scientific Officer (I & L) and Published by the Executive Secretary, INSA, and
Printed at : Kapoor Art Press, Mayapuri, New Delhi-110064